

Application No. 09/475,544
Amendment dated August 3, 2004
Reply to Office Action of May 3, 2004

Amendments To The Claims:

This listing of claims will replace all prior versions, and listings, fo claims in the application.

Listing of Claims:

Claim 1 (currently amended): A nonwoven fabric formed on a three-dimensional image transfer device, said fabric consisting of a continuous web of substantially endless thermoplastic melt extruded filaments comprised of polyolefins, or polyesters, said filaments having a denier of about 0.5 to 3, wherein said filaments are collected and thereafter hydroentangled in the form of interengaged packed loops, with the substantially endless filaments being substantially free of breaking, wrapping and knotting , said fabric exhibiting cross-direction elongation of at least about 90%, and machine direction elongation of at least about 75%, while exhibiting tensile strength generally proportional to cross-direction and machine-direction elongation values.

Claim 2 (original): A nonwoven fabric as in claim 1, wherein said filaments have a denier of about 1.0 to 2.5.

Claim 3 (canceled).

Claim 4 (original) A nonwoven fabric as in claim 1, wherein said nonwoven fabric has a basis weight of between about 20 and 450 g/m².

Claim 5 (canceled).

Claim 6 (original): A nonwoven fabric as in claim 1, wherein said fabric having a surface treatment chosen from the group comprising: wetting agents, surfactant, fluorocarbons, antistats, antimicrobial, binders, and flame retardants.

Claim 7 (original): A nonwoven fabric as in claim 1, wherein said fabric comprises an article chosen from the group comprising: an absorbent article, industrial apparel, medical apparel, medical fabric, agricultural fabric, recreational fabric, upholstery, and durable apparel.

Claim 8 (original): A nonwoven fabric as in claim 1, wherein said fabric has a machine direction elongation value of at least 75%, and a cross-direction elongation value of at least 100%.

Claim 9 (original): A nonwoven fabric as in claim 1, wherein said fabric has a fiber entanglement frequency of at least 10.0, and a fiber entanglement value of at least 1.00.

Claim 10 (original): A nonwoven fabric as in claim 1, wherein said fabric has a fiber interlock value of at least 15.

Claim 11 (original): A nonwoven fabric as in claim 1, wherein said continuous web of substantially endless thermoplastic filaments comprises a plurality of layers of said continuous filaments.

Claim 12 (original): A nonwoven fabric as in claim 1, wherein said interengaged packed loops provide a structure wherein cross-direction elongation is directly proportional to cross-directional tensile strength.

Claim 13 (amended): A nonwoven fabric formed on a three-dimensional image transfer device, consisting of a continuous web of substantially endless

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melt-extruded thermoplastic filaments having a denier of about 1.0 to 2.5, wherein said filaments are collected and thereafter hydroentangled in the form of interengaged packed loops, with the substantially endless filaments being substantially free of breaking, wrapping, and knotting; said fabric having a basis weight of between about 20 and 450 gm/m², having a machine-direction elongation value of at least 75% and a cross-direction value of at least 100%, while exhibiting tensile strength generally proportional to cross-direction and machine-direction values, and having a fiber entanglement frequency of at least 10.0, a fiber entanglement completeness value of at least 1.00, a fiber interlock value of at least 15.

Claims 14-44 withdrawn.

Claim 45 (previously presented): A nonwoven fabric consisting of:

a web of substantially continuous thermoplastic filaments, said filaments being substantially free of breaking, said thermoplastic filaments each having a denier of about 1.2 to 2.5,

after collection, said thermoplastic filaments being hydroentangled on a three-dimensional image transfer device in the form of interengaged packed, continuous loops,

said fabric being extensible by disengagement and unpacking of said packed filament loops and straightening of said filaments prior to any substantial degree of breakage of said filaments,

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said fabric exhibiting cross-direction elongation of at least about 90%, and machine direction elongation of at least about 75%, while exhibiting tensile strength generally proportional to cross-direction and machine direction elongation values.

Claim 46 (original): The fabric of claim 45, wherein:

said fabric has a fiber entanglement frequency of at least about 10.0, and a fiber entanglement completeness of at least 1.00.

Claim 47 (currently amended): A nonwoven fabric, consisting of:

plural laminations each consisting of a web of substantially continuous polymeric thermoplastic filaments, said filaments being substantially free of breaking,

said thermoplastic filaments of each said web exhibiting a bonding temperature which differs significantly from the bonding temperatures of the thermoplastic filaments of an adjacent lamination,

after collection of said filaments thereof, each of said laminations being hydroentangled on a three-dimensional image transfer device whereby the filaments of the plural laminations interengage with each other to integrate and bond said laminations, said fabric exhibiting cross-direction elongation of at least about 90%, and machine direction elongation of at least about 75%, while exhibiting tensile strength generally proportional to cross-direction and machine-direction elongation values.

Claim 48 (original): A nonwoven fabric in accordance with claim 47, wherein:
one of said webs comprises polyethylene thermoplastic filaments having a denier from about 2 to 5, and comprises between about 40% to 90% of the weight of said fabric, and said nonwoven fabric has a basis weight from about 15 gsm to 80 gsm.

Claim 49 (original): A nonwoven fabric in accordance with claim 48, wherein:
an adjacent one of said webs comprises thermoplastic filaments selected from the group consisting of polypropylene and polyester, wherein the filaments have a denier of about 0.5 to 3.

Claim 50 (original): A nonwoven fabric in accordance with claim 48, wherein said one of said webs comprise polyethylene thermoplastic filaments having a denier of about 3.5, and comprises about 75% of the weight of said fabric, an adjacent one of said laminations comprising polypropylene thermoplastic filaments having a denier of about 1.5.

Claim 51 (previously presented): A nonwoven fabric in accordance with claim 47, wherein plural ones of said laminations each consist of polyethylene thermoplastic filaments, and another one of said laminations therebetween consists of polypropylene thermoplastic filaments,

said one lamination consisting of polypropylene filaments comprising about 10% to 60% of the weight of said fabric, with the polypropylene filaments having a denier of about 0.5 to 3,

said ones of said laminations consisting of polyethylene filaments together comprising from about 40% to 90% of the weight of said fabric, with the polyethylene filaments having a denier of about 1 to 5.

Claims 52-75 withdrawn.

Claim 76 (currently amended): A hydroentangled nonwoven fabric consisting of continuous filaments, said fabric comprising a plurality of layers of continuous filament nonwoven fabrics which have been initially thermally point bonded, said layers being hydroentangled together on a three-dimensional image transfer device to form a cohesive and durable fabric, said hydroentangled fabric being characterized by the substantial absence of thermal bonding in the layers , said fabric exhibiting cross-direction elongation of at least about 90%, and machine direction elongation of at least about 75%, while exhibiting tensile strength generally proportional to cross-direction and machine-direction elongation values.

Claim 77 (original): A hydroentangled nonwoven fabric as in claim 76, wherein each of said plurality of layers has a basis weight of 15 to 100 g/m², and said cohesive and durable fabric has a basis weight of between about 50 to 600 g/m².

Claim 78 (original): A hydroentangled nonwoven fabric as in claim 76, wherein each of said plurality of layers has a basis weight of 50 to 75 g/m², and said cohesive and durable fabric having a basis weight of 250 to 600 g/m².

Claim 79 (original): A hydroentangled nonwoven fabric as in claim 76, wherein each of said plurality of layers has a basis weight of 15 to 25 g/m², and said cohesive and durable fabric having a basis weight of 50 to 100 g/m².

Claim 80 (original): A hydroentangled nonwoven fabric as in claim 76, wherein each of said plurality of layers comprise a member of the group consisting of polyolefins, polyamide, polyesters, and combinations thereof.

Claim 81 (original): A hydroentangled nonwoven fabric as in claim 76, wherein each of said plurality of layers comprise polyesters.

Claim 82 (original): A hydroentangled nonwoven fabric as in claim 76, wherein each of said plurality of layers comprise fibers of 0.2 to 3.0 denier.

Claim 83 (original): A hydroentangled nonwoven fabric as in claim 76, wherein each of said plurality of layers initially has thermal bonds covering from 5% to 45% of layer area.

Claim 84 (original): A hydroentangled nonwoven fabric as in claim 76, wherein each of said plurality of layers initially has thermal bonds covering from 10% to 30% of layer area.

Claim 85 (original): A hydroentangled nonwoven fabric as in claim 76, wherein said coherent final fabric is substantially free of thermal bonds.

Claim 86 (original): A hydroentangled nonwoven fabric as in claim 76, wherein said coherent final fabric is characterized by continuous filaments hydroentangled into an arrangement of packed loops and spirals that are substantially free of filament breakage and knotting.

Claim 87 (original): A hydroentangled nonwoven fabric as in claim 76, further comprising an additional prebonded nonwoven web of staple fibers hydroentangled with said plurality of thermally bonded layers.

Claim 88 (original): A hydroentangled nonwoven fabric as in claim 76, wherein a first of said plurality of layers is hydroentangled with at least a second of said layers by subjecting said first layer while superimposed on said at least a second layer to jets operating at pressures greater than 1,500 psi.

Claim 89 (original): A hydroentangled nonwoven fabric as in claim 76, wherein a first of said plurality of layers is hydroentangled with at least a second of said layers by subjecting said first layer while superimposed on said at least a second layer to jets operating at pressures greater than 2,000 psi.

Claim 90 (original): A hydroentangled nonwoven fabric as in claim 76, wherein a first of said plurality of layers subjected to jets operating at pressures greater than 1,500 psi, and a second of said plurality of layers subjected to jets operating at pressures greater than 3,000 psi.

Claim 91 (original): A hydroentangled nonwoven fabric as in claim 76, wherein each of said plurality of layers comprises polyester, and said cohesive and durable fabric jet dyed.

Claim 92 (currently amended): A hydroentangled nonwoven fabric of continuous filaments, said fabric comprising a plurality of layers of initially thermally point bonded continuous filament nonwoven fabrics, each of said layers comprised of polyester and having a basis weight of between 15 to 100 g/m², said layers being hydroentangled on a three-dimensional image transfer device together to form a cohesive and durable fabric having a basis weight of between about 50 to 600 g/m², said hydroentangled fabric being characterized by the substantial absence of

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thermal bonding in the layers and characterized by continuous filaments hydroentangled into an arrangement of packed loops and spirals that are substantially free of filament breakage and knotting, said cohesive and durable fabric being jet dyed , said fabric exhibiting cross-direction elongation of at least about 90%, and machine direction elongation of at least about 75%, while exhibiting tensile strength generally proportional to cross-direction and machine-direction elongation values.